29th International Cosmic Ray Conference Pune (2005) **2**, 251-252

# Modeling cosmic ray intensities over an 11 year modulation cycle

S.E.S. Ferreira[a], D.C. Ndiitwani[a], M.S. Potgieter[a] and B. Heber[b]
*(a) School of Physics, North-West Univerisity (Potchefstroom Campus), 2520 Potchefstroom, South Africa*
*(b) Physikalisches Institut, Pfaffenwaldring 57, 70550 Stuttgart, Germany*
Presenter: S.E.S. Ferreira (fsksesf@puknet.puk.ac.za), saf-ferreira-S-abs1-sh34-poster

Time dependent cosmic ray modulation in the inner heliosphere is studied by comparing results from a two-dimensional time-dependent cosmic ray transport model with Ulysses observations. A compound approach, which combines the effects of the global changes in the heliospheric magnetic field magnitude with drifts to establish a realistic time-dependence in the diffusion and drift coefficients, are used. We show that this model results in realistic cosmic ray modulation from Ulysses launch (1990) until recently (2004) when compared to observations. This approach is also applied to compute radial gradients present in 2.5 GV cosmic ray electron and protons in the inner heliosphere. The observed latitude dependence for both positive and negative charged particles during both the fast latitude scan periods, corresponding to different solar activity conditions, could also be realistically computed. For this an additional reduction in particle drifts toward solar maximum is needed.